

Climate governance and roles/policies of cities in Japan

Junko AKAGI

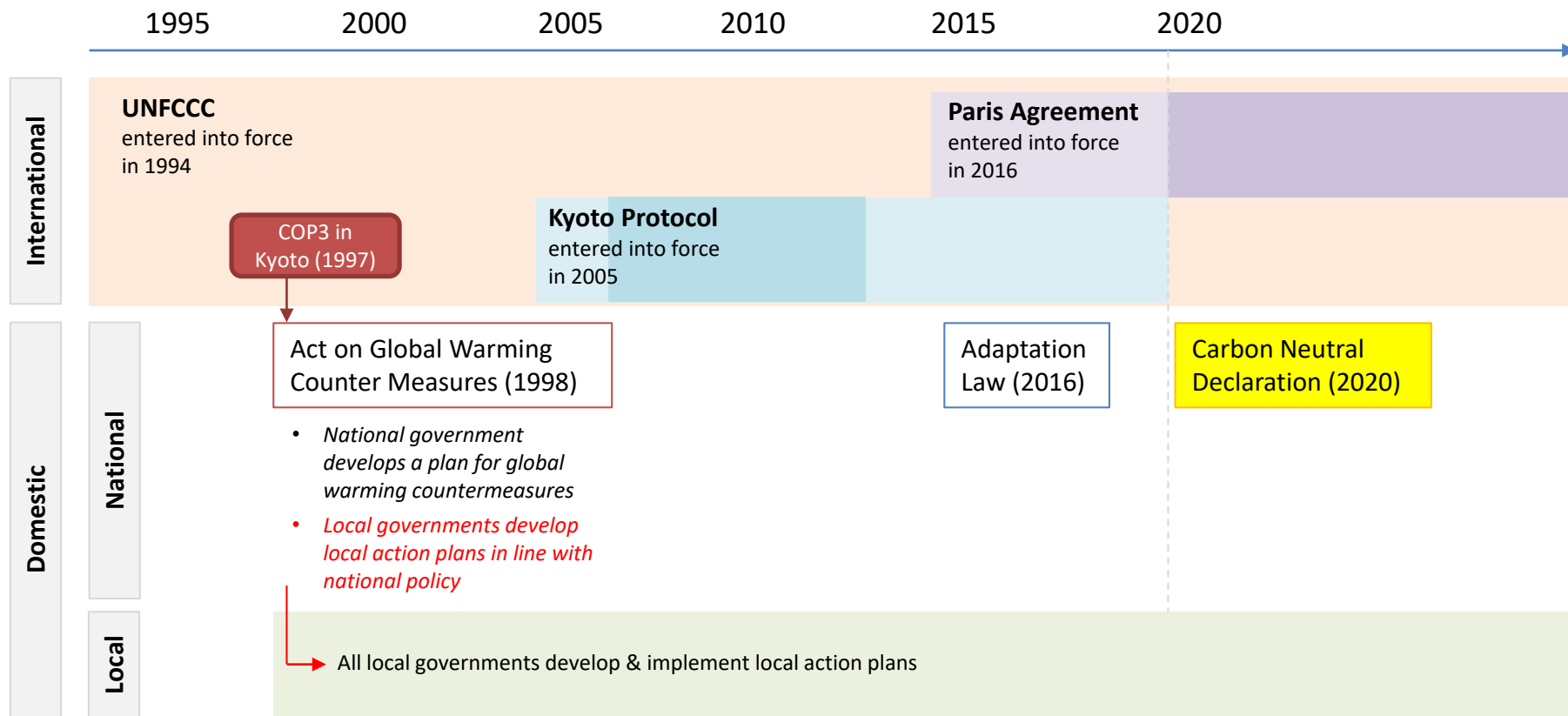
Research Manager
Kitakyushu Urban Centre

2nd International Forum on Low Carbon Cities
6-7 December 2022, Sheraton Grand, Incheon, Republic of Korea
Session 1 (Goals and institutions) Climate governance and roles/policies of cities





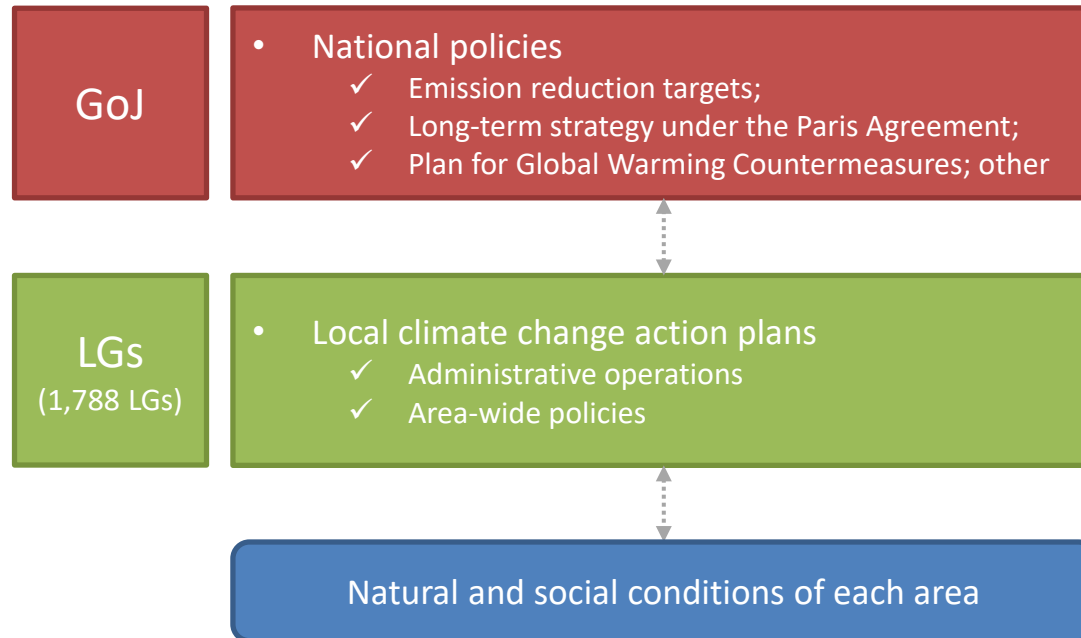
Climate change policy development in Japan





Multi-level governance in Japan

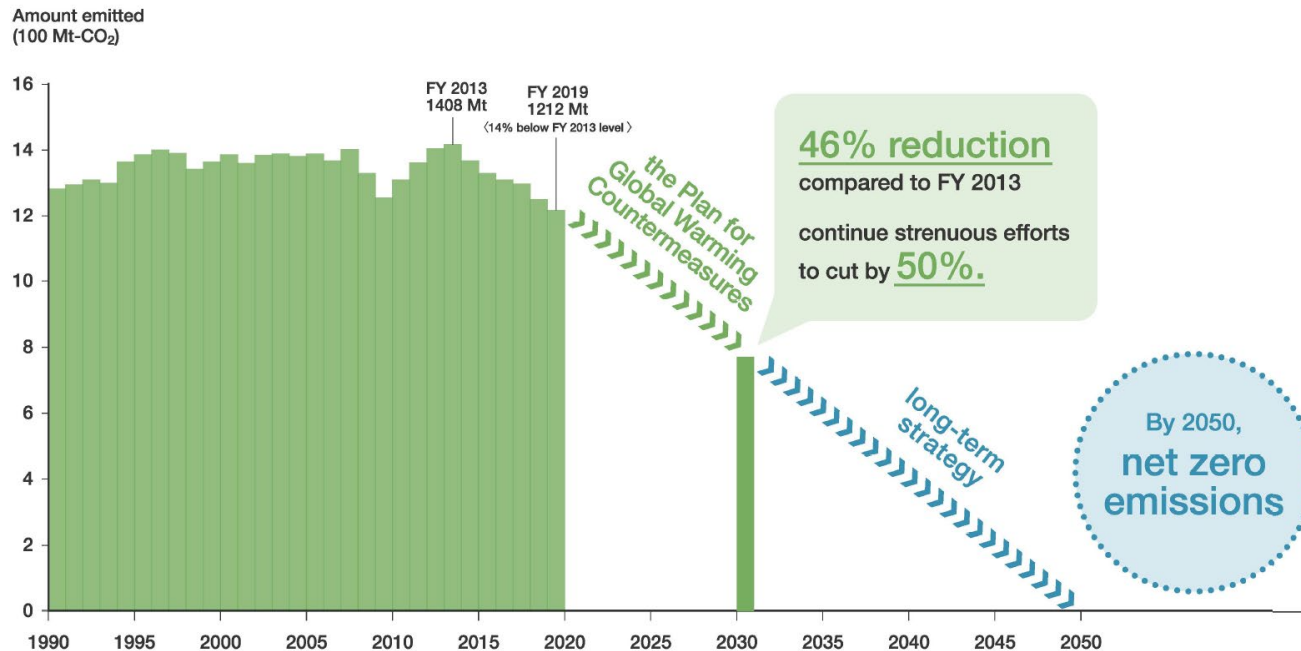
Under Article 21 of the Act, **local governments are required to formulate and implement comprehensive and systematic measures** to control GHG emissions in line with the **natural and social conditions of each area** pursuant to the **Plan for Global Warming Countermeasures**.





Japan Commitment to Net-Zero by 2050

(Declared on 26th October, 2020)



Source: Prepared from "Greenhouse Gas Emissions in FY 2019 (Confirmed)" and "Global Warming Countermeasures Plan"

Policies for Net-Zero 2050

- Japan Commitment to Net-Zero by 2050
- Plan for Global Warming Countermeasures and Long-Term Strategy
- New energy system with a Focus on Renewable Energy
- Regional Decarbonization Roadmap



Plan for Global Warming Countermeasures: Key points

Renewable energy, energy efficiency and conservation

- Municipalities set promotion areas for renewable energy based on the amended Act on the Promotion of Global Warming Countermeasures
 - Expand renewable energy that brings benefits to the local communities
- Expanding houses and buildings that are obliged to comply with energy-saving standards

Industries, transportation, etc.

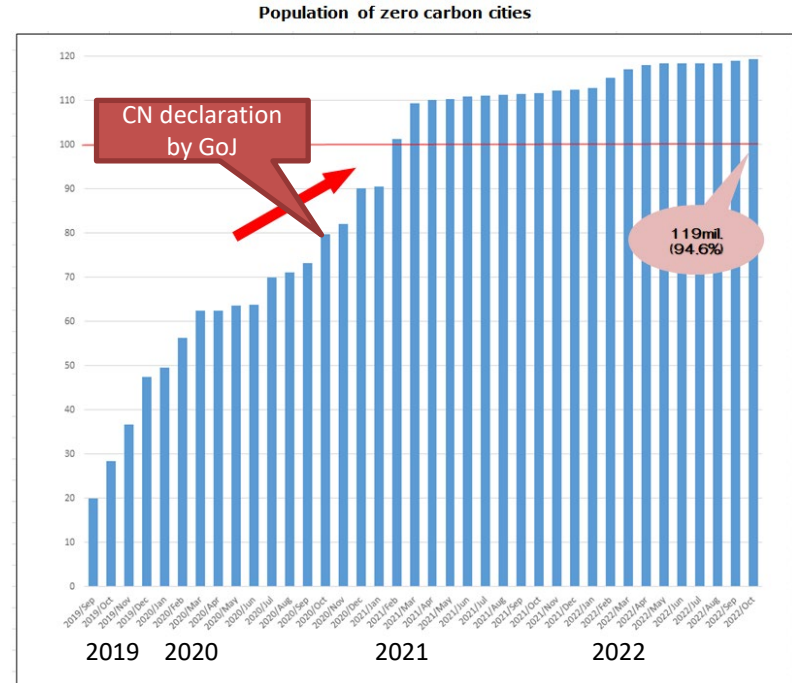
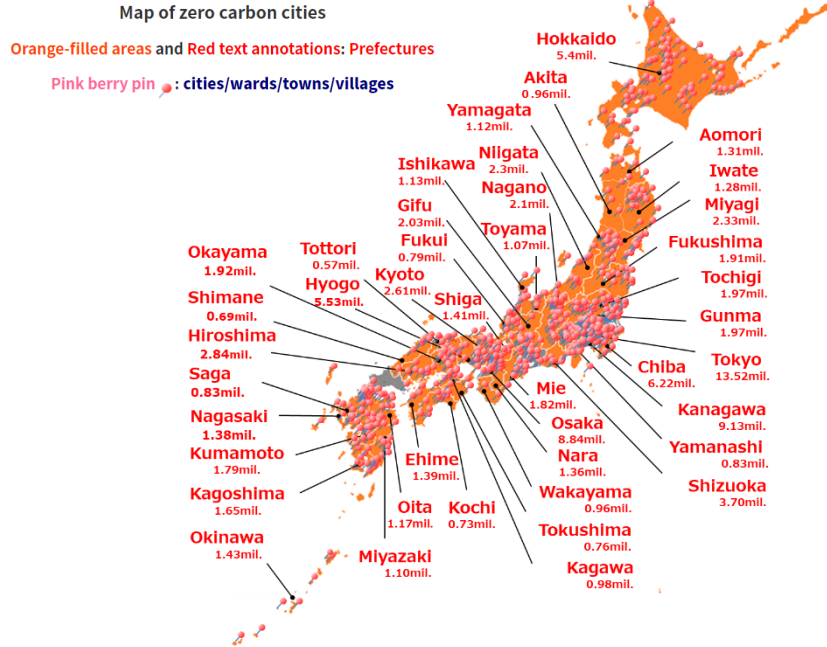
- Supporting Innovation for 2050
 - The 2 trillion yen fund supports research and development and social implementation in priority areas such as hydrogen and storage batteries.
- R&D and demonstration projects to support data centers to achieve energy conservation more than 30%

Cross-sectoral approach

- Setting more than 100 decarbonization-leading areas by FY 2030 (Regional Decarbonization Roadmap)
- Reducing emissions in developing countries by using advanced decarbonization technologies etc.
 - Contributing to reduction on a global scale through the "Joint Crediting Mechanism: JCM"

2050 Zero Carbon Cities in Japan (As of October 31, 2022)

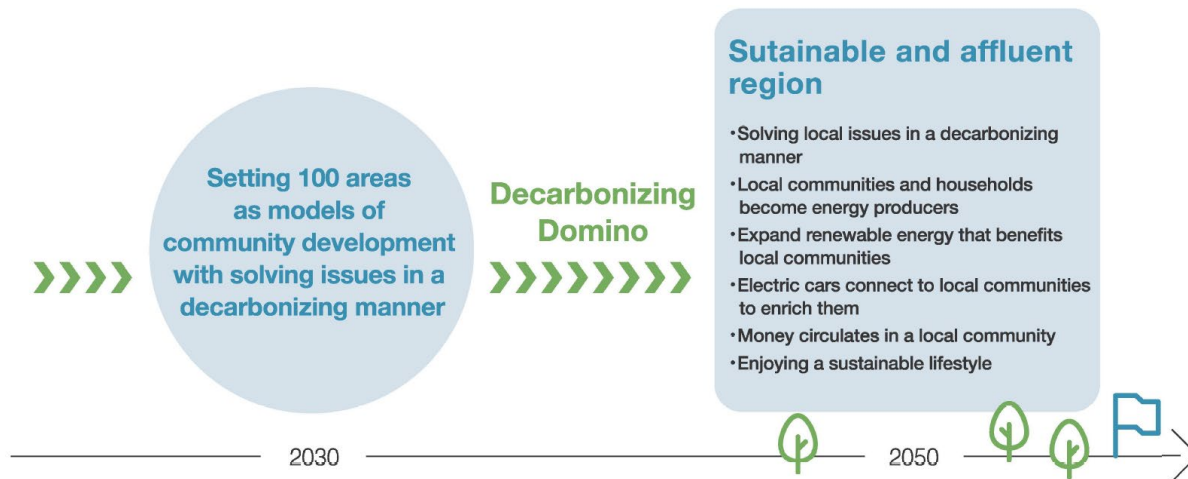
- 797 local governments including Tokyo, Kyoto, and Yokohama announced their commitment to net zero carbon emissions by 2050.
- These local governments represent 119 million people (94.6% of Japan's population).





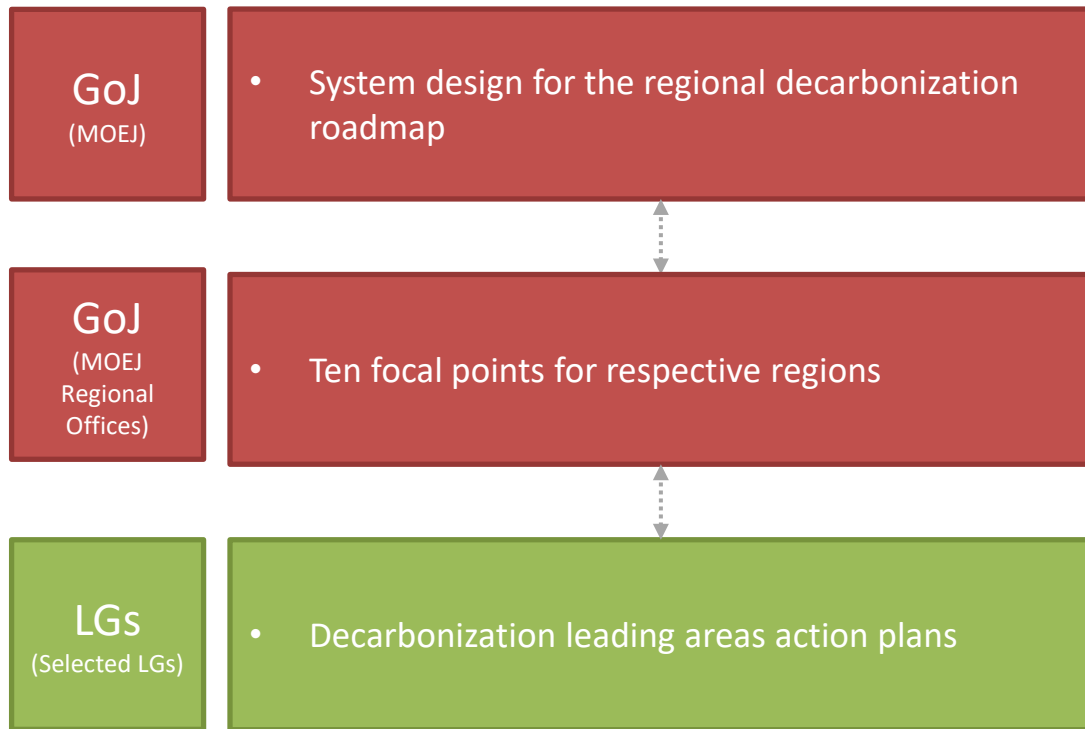
Regional Decarbonization Roadmap (Formulated on June 9, 2021)

- The roadmap was formulated by the Council for National and Local Decarbonization.
- Actions closely related to **local initiatives** and the **lifestyles** of the people were discussed.
 - First of all, we will promote **problem solving x decarbonizing regional development** from 100 locations nationwide.
 - Local entities take priority measures such as for self-consumption solar power generation, and energy saving in houses and buildings.
 - Expanding to national and overseas markets like Domino Effect, creating sustainable and affluent regions nationwide.
 - Key Initiatives: Utilizing Human Resources, Information, and Finance. Innovating Lifestyles and Rules.





Multi-level governance for the Roadmap



Regional offices of the Ministry of the Environment





Grants to Promote Regional Decarbonization Transition and Renewable Energy

- Financial support to local governments that are willing to take actions in “Decarbonization Leading Areas (DLA)” or “Priority Measures”.
 - ✓ Grants from GoJ: Max. JPY 5 billion per project
 - ✓ Grants from GoJ: Max. JPY 2 billion per project

- Budget size: JPY 20 billion for FY2022; JPY 40 billion for FY2023.



Selected municipalities (FY2022)

脱炭素先行地域の選定状況（第1回+第2回）

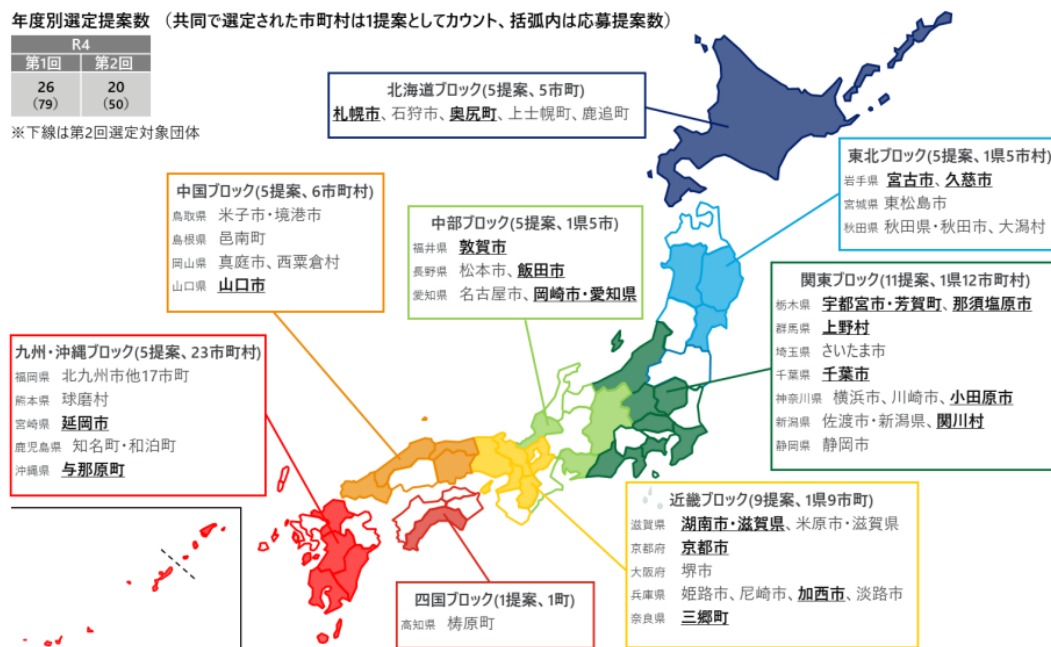


■ 第2回までに、全国29道府県66市町村の**46提案**が選定された。

年度別選定提案数（共同で選定された市町村は1提案としてカウント、括弧内は応募提案数）

R4	
第1回	第2回
26 (79)	20 (50)

※下線は第2回選定対象団体



Supply of renewable energy to data centers and other facilities to develop industrial clusters and leverage renewable energy potential to the region's advantage

A specified power transmission and distribution project utilising photovoltaics and woody biomass will supply renewable energy to data centers and other facilities that will be concentrated in the Ishikari Bay New Port area, which functions as an industrial base, with the aim of decarbonising the area and further developing industrial clusters.

Case 1: Ishikari City

Basic Data

Location

Public facilities in the Ishikari Bay New Port area and Hanakawakita district (Ishikawa City central core area)

Energy (Includes facilities to be installed as of June 2022)

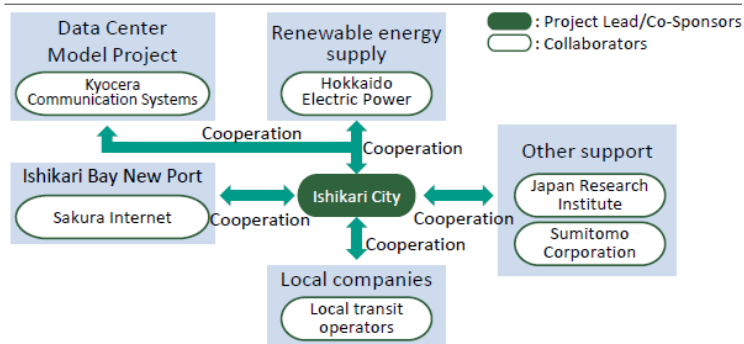
Photovoltaics: 2,669 kW (3,080 MWh*)

Wind power: 4,050 kW

Biomass: 151,500 kW (469,539 MWh*)

*Calculated only for facilities to be installed

Structure and system



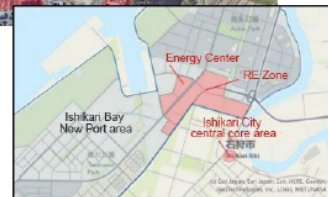
Action-Oriented Solutions to Local Challenges

Supply renewable energy to develop industrial clusters in industrial bases

- A specified power transmission and distribution project utilising photovoltaics and woody biomass will supply renewable energy to a new data center that will be built in the Ishikari Bay New Port area and surrounding facilities.
- The project will increase the availability of renewable energy in the development of industrial clusters through the introduction and use of new and post-FIT power sources. Plans are also in place to expand the regulatory capacity of the local area through the use of hydrogen, large storage batteries and demand response.

Decarbonise and enhance the resilience of public facilities and local transport

- The introduction of photovoltaic systems in five public facilities will promote the private consumption of electricity. With the installation of storage batteries, power will be shared between the five facilities to further improve the region's self-sufficiency rate for renewable energy in the future.
- In this project, official vehicles will be switched over to EVs and car sharing will be promoted to reduce greenhouse gas emissions in the transportation sector, and storage batteries mounted on vehicles will be used to achieve resilient administrative functions in the event of a disaster.



Location map of Decarbonisation Leading Area

(Source: Ishikari City)

Simultaneous promotion of decarbonisation, sustainable agricultural growth, and disaster prevention measures with the effective use of biogas derived from livestock manure

Biogas generated from processing livestock manure will be used to decarbonise the town and simultaneously promote sustainable agricultural growth, ensure a livable environment with respect to odors and water quality, improve energy self-sufficiency rates, and support disaster prevention measures.

Case 2: Shikaoi Town

Basic Data

○ Location

Area around town hall, Urimaku area, Lake Shikaribetsu area, energy supply area (Naka-Shikaoi Biogas Plant, Urimaku Biogas Plant, No.3 Biogas Plant, etc.) and other public facilities in Shikaoi Town

○ Energy (Includes facilities to be installed as of June 2022)

Photovoltaics: 637 kW (735 MWh)

Biomass: 2,540 kW (18,376 MWh)

Hydrogen fuel cells: 20 kW (88 MWh)

Methane co-generation : 10 kW (44 MWh)

Structure and system

Area	Point of contact	
Lake Shikaribetsu	Fusui (Hotel operator, open)	Lake Shikaribetsu Nature Center
	Fukuhara (Hotel operator, closed)	Kamishihoro Ranger Office
Energy supply	Shikaoi H2Farm	Local PPS
	Biogas Plant User Guild for the Installation of No.3 Plant	Dairy farmers
Other	Town residents	JA Shikaoi, farmers
	Chamber of Commerce and Industry	Geopark

Action-Oriented Solutions to Local Challenges

- **Use livestock manure to promote decarbonisation and sustainable agricultural growth and secure a livable environment**
 - In addition to the existing Naka-Shikaoi Biogas Plant, the No.3 biogas plant (1,500 kW) will be newly constructed to decarbonise the town through the use of biogas generated from processing livestock manure, promote sustainable agricultural growth, secure a livable environment by targeting odors, and improve self-sufficiency rates for energy.
 - Hydrogen produced at the Naka-Shikaoi Biogas Plant will be transported to areas around town hall in curdles and supplied to fuel cells that will make it possible to supply electricity and heat in both normal times and in emergencies.
- **Reduce outflow of capital and create new jobs with power supplied by local PPS**
 - Renewable power supplied to all public facilities via a local PPS will help achieve the local production of electricity for local consumption, control the outflow of energy capital outside the region, and create new jobs.



Naka-Shikaoi Biogas Plant (Source: Shikaoi Town)

Local circulation of energy costs and improved management of sewerage systems through the effective use of biomass derived from sewage and other materials

In this project, digestion gas, photovoltaics and wind power will be introduced to sewerage-related facilities and electricity will be supplied to public facilities through private transmission lines with controls in place for supply and demand. Sewerage service fees will be reduced and jobs created with improvements to the management and operation of sewerage works.

Case 3: Akita Pref.

Basic Data

○ Location

Public facilities located in the Mukaihama area of Akita City in the central western part of Akita Prefecture

○ Energy (Includes facilities to be installed as of June 2022)

Photovoltaics: 5,500 kW (6,002 MWh*)

Wind power: 3,800 kW (6,174 MWh*)

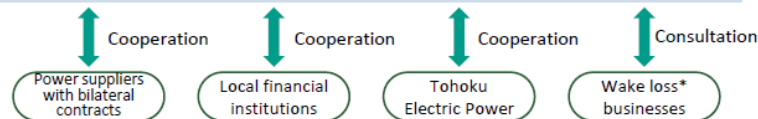
Digestion gas: 800 kW (6,073 MWh*)

*Calculated only for facilities to be installed

Structure and system

Federation of Decarbonisation Leading Area Stakeholders (Provisional name)

- President: Private company representative
Vice-President: Director, Akita Prefecture Construction Department
- Members: Consumers (Akita Prefecture Construction Department; Tourism, Culture and Sports Department; Industrial and Labor Affairs Department; City Environment Department)
Designated administrator (Company assigned to maintain and manage user facilities)
Business operators (Companies implementing renewable energy projects selected through open recruitment)



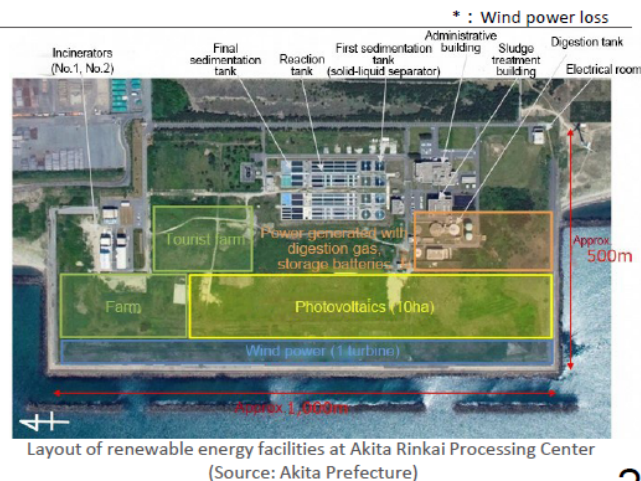
Action-Oriented Solutions to Local Challenges

• Use biomass generated from sewage effectively to improve the management of sewerage works

- The use of biomass generated from sewage, such as digestion gas, will improve management of sewerage works, reduce sewage fees paid by residents, create new jobs, and promote agriculture and the local circulation of resources through the use of resources, such as producing compost from sewage sludge.

• Install and accommodate renewable energy equipment in public facilities to realise the local circulation of energy costs paid by prefectural residents

- Digestion gas, wind power and photovoltaics will be installed on-site at the Akita Rinkai Processing Center, and photovoltaics will be installed on-site at the sludge reclamation center. Renewable power will be supplied to public facilities and other locations within the area using private transmission lines, while supply and demand will be controlled through the use of storage batteries and energy management systems.
- Energy costs paid by prefectural and city residents will be circulated locally through the active use of renewable energy in clusters of public facilities with high energy costs in the prefecture.



Thank you for your attention.

More information is available at the MOEJ websites:

- Support Site for Creating a Decarbonized Region(only in Japanese)
<https://policies.env.go.jp/policy/roadmap/>
- Web Portal for Zero Carbon Development in Asia
Under the “Domestic efforts in Japan”
<https://www.env.go.jp/earth/coop/lowcarbon-asia/english/initiatives/>